

DISEASES

OF THE

CHEST

Official Organ of the Amer. College of Chest Physicians
 Editorial offices 1018 Mills Building, El Paso, Texas
 Business Address P. O. Box 1069, El Paso, Texas
 MEMBER: ASSOCIATED EDITORS OF TUBERCULOSIS PUBLICATIONS



(A MONTHLY PUBLICATION)

Subscription: United States and
 Canada \$2.00 per year. Other
 countries \$2.50 per year.
 Entered as second-class matter
 August 18, 1936, at the post office
 at El Paso, Texas, under the Act
 of August 24, 1912.

Editorial Comment

PREVENTORIUM NEEDS

The Preventorium is not, as its name implies, needed to prevent tuberculosis. Its function is to cure tuberculosis before it has reached the third stage, commonly called the reinfection or adult-type stage.

It is not necessary to build expensively for the purpose, as is the case with the Sanatorium or Hospitorium. A home where the infected child, who is non-infectious, can live for a period of months, having during that time clean air, nourishing food, regular hours of sleep with an afternoon sleep period and at the same time be absolutely safeguarded from infectious patients or employees or visitors, is all that is necessary. Almost no medical attention is required. Nursing is necessary only in case of intercurrent acute illness, which will be little, if strict quarantine of new admissions and prohibition of young visitors is adhered to. Attendants must be ample. The doctor's single most important function in the Preventorium is the safeguarding of the institution from tuberculous infectors, whether patients, employees or visitors.

The practice of having apparently cured tuberculosis patients from a nearby Sanatorium work in a Preventorium is to be condemned. There is too much possibility of

relapse not being discovered before the infection of the children has occurred.

All employees of the Preventorium should be tuberculin test negative when employed. The test should be repeated annually and any positive reactor x-rayed; suspicion of the third stage (adult) should require removal.

Brief explanation of the stages of tuberculosis is in order due to the multiplicity of terms in use.

The first stage of tuberculosis is from the time of infection until the development of a positive tuberculin test.

The second stage of tuberculosis is from the development of a positive tuberculin test until the beginning of the so-called adult type or reinfection type of lesion.

We are all agreed on the cause of the first stage—it is the invasion of the patient by the germ, *Mycobacterium Tuberculosis*.

Most authorities ascribe the second stage to allergy—it is a peculiar allergy, however. Unlike the usual skin test which shows positive in a few minutes, sometimes seconds, as a local congestion and edema that quickly subsides (usually in a day), the tuberculin reaction has cellular infiltration as a feature and there may be local necrosis, the reaction is not usually inspected for diagnosis until two days after the test is performed, and may

last for weeks.

The third stage of tuberculosis infection, which in the past has been called adult or reinfection tuberculosis and which is characterized by a proliferative or destructive change in one or more lobules or lobes of one or both lungs, is ascribed by various authors to various happenings in or to the infected patient.

Those who think in terms of guinea pig tuberculosis, are prone to ascribe this third stage to reinfection from without from an infectious tuberculous patient.

The pathologist has taught us, however, that *Mycobacterium Tuberculosis* is usually alive in apparently healed tuberculosis, even of the childhood type, and the safety of the individual from consumption in adult life after infection in childhood, depends upon the thoroughness of the walling off process, a factor largely dependent upon general health factors and the extent of the childhood "seeding" with the organism or, in other words, the size of the tuberculous dose of infection.

We are in hearty agreement with those who condemn the building of hospitals such as are necessary for the treatment of the third stage of tuberculosis and keeping uninfected children, or children in no need of treatment, or children from noninfectious environments, lying in bed therein. We do not believe the tuberculosis sanatorium is the place for the Preventorium.

The Preventorium should be an inexpensive temporary home for the infected, positive tuberculin reaction child, who is either unable otherwise to live in an environment uninfected by tuberculosis, or who needs institutional discipline regarding regularity and quantity of rest and a sufficient dietary to give ideal

opportunity for as permanent a cure as possible.

We dare not overlook the facts that it is always impossible to remove most infectious tuberculosis cases from slum areas and it is often impossible to remove them from some relatively good districts, even if they were all discovered, whereas, most of the infectious cases are not even known. Many thousands of them are teachers, daily infecting our children in the schools. Thousands of them clutter our city parks, too ill to work, infecting the grass plots and sidewalks where the little children play, and not only the poor little children. We see the uniformed nurse maid, baby in perambulator, sharing a bench with a cough wracked, almost dying victim in our most fashionable Squares.

We all agree that when every case of third stage tuberculosis is found early, through sufficient surveys, and every positive sputum case is segregated and every family having tuberculin positive children is supplied with proper housing and sustenance, we will no longer need the Preventorium. By that time, parents will all know how much rest a child needs and will be so familiar with child psychology, they will be able to control that child. But now, we must face conditions as they are, not as we wish they were. We must not say, "Do away with the Preventorium and instead do that which we know we cannot do, but which, if we could do, would make the Preventorium unnecessary."

Keep the Preventorium; it should be inexpensive; it will build general health—no one questions that. It has been giving and will give the tuberculosis infected, undernourished child a better chance. As long as tuberculosis runs amuck, hand in hand with poverty and exhausting human toil, we will need the Preventorium.

F. W. B.

MARINE HOSPITAL BILL INTRODUCED

REPRESENTATIVE Welch of California has just introduced to Congress, H. R. 6983, a bill authorizing a federal appropriation for the construction of a marine hospital in California to be used exclusively for the care and treatment of patients afflicted with tuberculosis.

ADDRESS of the OUTGOING PRESIDENT

American College of Chest Physicians*

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Atlanta, Georgia

ON THIS OCCASION one year ago, I essayed, or at least was credited with doing so, an oration. This today will be no oration. In fact, it probably does not merit the dignity of the term address, as it is so styled on the program. My remarks rather, constitute only an accounting of my stewardship, and a report of the activities of the College during my tenure of office.

When I was inducted into the high office of President of the American College of Chest Physicians, I pledged, in concluding my inaugural address, to lead with a zeal, a dignity and a loftiness of purpose. Gentlemen, it is with an utter sincerity—and in no sense the mouthings of a braggart—that I tell you this pledge has been kept. Perhaps I have not given you the brilliance of a genius, the prestige of a collusus, nor left behind me the wake of national achievement; but I have given to this post an unswerving loyalty, and the best in leadership that I could command.

Each of you is acquainted with the forward progress of our splendid organization during the past year; and a detailed accounting of this factual record would be not only repetitious, but perhaps somewhat boring. To touch upon a few high lights, a few of the mile stones along the way, should suffice.

Shortly after taking office I heard, as did most of you, murmurings regarding the amalgamation of the several organizations interested in chest diseases. Many were in sincere earnestness; some sounded the note of



petulance. Only just now there issues from the camp of the National Tuberculosis Association a call to arms for the formation of yet another organization. This is to be an all embracing one, designed to bring all the groups into one fold—and that fold to be the National Association itself. Unofficially, but with the moral support of our incoming President and that of a few of our officers who were at hand; I declared before the general session of the American Sanatorium Association, then meeting in Los Angeles, that while we deplored the multiplicity of existing groups—we wished to maintain our integrity. I feel that way today; but mine is a chronicle of past events, and our future policy falls more into the laps of others.

It is a matter of record that our membership is now well beyond the 500 mark; and comprises most of the leading chest specialists throughout the nation. Nearly every state in the union, and the territorial possessions, are represented by a Governor of the College. The active and meritorious work of our several committees, from whom you will hear later in this meeting, are arousing a national awakening. The Pennsylvania Plan, which is sponsored by our organization and is being put into operation by our able committees; is taking root with an amazing rapidity and

(Continued on Page 26)

* Delivered on May 14, 1939, at the Fifth Annual Meeting of The American College of Chest Physicians, held at St. Louis.

Sulfapyridine in the Treatment of Pneumonia in Children*

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Philadelphia, Pennsylvania

ANY DRUG, recommended for the treatment of pneumococcic pneumonia which would obviate the necessity of intravenous administration of the medicament and which would not be completely dependent upon the typing of the offending pneumococcus, would find its warmest welcome in the field of pediatrics. Sulfapyridine may prove to be that drug and may provide the solution to these difficulties. Physicians are well familiar with the difficulties encountered when an attempt is made to type the sputum of a child sick with pneumonia. Pharyngeal and gag swabs are never completely satisfactory. Serum therapy has been abandoned by most pediatricians, except in patients with a positive blood culture.

The in vitro and animal experimentation with sulfapyridine has definitely established it to be of low toxicity for animal protoplasm but highly effective in controlling pneumococcic infection^{1,2,3,4,5}. The literature dealing with the earlier work with this drug has been thoroughly reviewed by others^{3,4,6,7}. There remains the recording of a sufficient number of cases of pneumococcic infection in human beings successfully controlled by sulfapyridine in order that it may be included in our therapeutic armamentarium. This has been done in England^{8,9}. In this country, however, only the reports of Barnett and his collaborators⁶ and Flippin and his co-workers⁷ deal with the use of the drug in human beings. Barnett reported results obtained with sulfapyridine in twenty-three children with pneumococcic infections, eleven of whom had uncomplicated lobar pneumonia. Their results were uniformly good.

The patients in the present series were in no way selected, except that a clinical diagnosis of pneumonia substantiated by roentgenogram was required of all receiving the

drug. The cases of frank lobar pneumonia were regarded as pneumococcic in origin in spite of unsuccessful sputum typings. The cases of bronchopneumonia were considered to be due to a mixed infection. Typings were attempted in all cases, usually without success. Blood cultures were made in each case. The red and white blood counts and the urine were followed closely during the administration of the drug. Careful clinical notes were kept to record any untoward reactions and to note the time of disappearance of the clinical signs. Check-up roentgenograms were made in most instances. The time of probable onset of the pulmonary pathology in relation to the beginning of sulfapyridine medication was carefully noted.

The dosage used was calculated on the basis of the child's weight. One grain per pound per day was given. This was divided into six, four hourly doses over a period of twenty-four hours. In most instances the drug was given for three days. The initial dose was one and one half to twice the amount of the other four hourly doses. An alkali in suitable doses was given in conjunction with the sulfapyridine. Sodium citrate was used exclusively. Other treatment consisted of general supportive measures.

Results

Twenty-three children with pneumonia were treated with sulfapyridine. Twelve of these had lobar consolidations. The remaining eleven gave evidence of patchy involvement.

Lobar Pneumonia: As shown in Chart I, p. 10, all twelve patients with lobar consolidations gave immediate responses to the institution of sulfapyridine therapy. In only one patient did it require more than thirty hours for the temperature to reach a normal level (Table I, p. 11). Concomitant with the fall in temperature, there was noted an immediate improvement in the general condition of the patient. Three children, who were moribund, were sitting in bed playing the

* Read before Southeastern Branch of The Philadelphia County Medical Society on March 2, 1939. The drug was supplied to us through the courtesy of Merck & Company, Rahway, New Jersey.

**From Pediatric Service No. 1 of Mt. Sinai Hospital, and Pediatric Service No. 2 of St. Lukes and Children's Hospital.

following day. As shown in Table I, p. 11, the pathology was not materially affected. Both clinically and by roentgenogram, the pneumonic process progressed in its usual manner. It may also be noted in Chart I, p. 10, that all these patients were treated early and, therefore, the critical fall in the temperature may perhaps reasonably be attributed to the sulfapyridine.

Bronchopneumonia: Chart 2, p. 10, gives a composite picture of the temperature curves in the eleven patients with bronchopneumonia. The course of the disease was not materially affected by sulfapyridine, whether or not the drug was exhibited early or late (Table 2, p. 11). There was a mortality of 18 per cent in this small group of patients. These findings differ from those of Evans and Gaiford⁹, and Barnett and his collaborators⁶.

Age Distribution: The patients with lobar pneumonia were between four and twelve years of age. Six of the eleven patients with bronchopneumonia were three years of age and under, two of them being under one year of age.

Toxicity: The toxic changes in our patients were similar to those found by others who had used sulfapyridine^{6,7,9}. Cyanosis was uniformly present during its administration. It disappeared as soon as the drug was discontinued. Nausea was present in twelve of the twenty-three patients and vomiting was troublesome in five. Table 3, p. 12, shows that the changes in the blood findings were no different than those to be expected with any acute infectious disease. None of the patients exhibited any mental symptoms after sulfapyridine therapy was started.

Complications: One of the patients with lobar pneumonia developed a staphylococcic otitis media four days after the sulfapyridine was stopped. Three of the cases of bronchopneumonia developed otitis media. There were no cases of empyema.

Administration: No great difficulties were encountered in giving the drug by mouth. When the patient vomited an individual dose, it was immediately repeated.

Dosage: We have used doses of sulfapyridine similar to that used by Barnett and his co-workers⁶ in children. These are at a lower level than that recommended by most English writers, excepting Evans and Gaiford⁹.

We believe that with a greater experience with the drug a lower dosage will be found to be adequate.

Conclusions

It is an accepted scientific principle that pneumonia statistics should be compared only during an individual season. We did not feel justified in using the alternate case method and, therefore, have no untreated cases to present. However, a survey of the records of patients with lobar pneumonia treated at the same hospitals from which this series was taken, definitely demonstrates the fact that sulfapyridine hastens the crisis by about three or four days, thus decreasing materially the morbidity and the period of hospitalization. We do not believe that sulfapyridine therapy will materially affect the mortality figures of lobar pneumonia in children as they are already low (3 to 5 per cent). We are hopeful that it will result in a greater economy, both to the patients and to those responsible for them.

The results obtained with the patients with bronchopneumonia were disappointing. This, most likely, is due to the fact that we were not dealing with pneumococcic infections. However, it is the bronchopneumonic patient who faces the highest mortality and gives the pediatrician his greatest concern. We had, therefore, hoped that sulfapyridine would point to the way out. The results in this small series of patients indicate that little is to be expected from it with this type of patient.

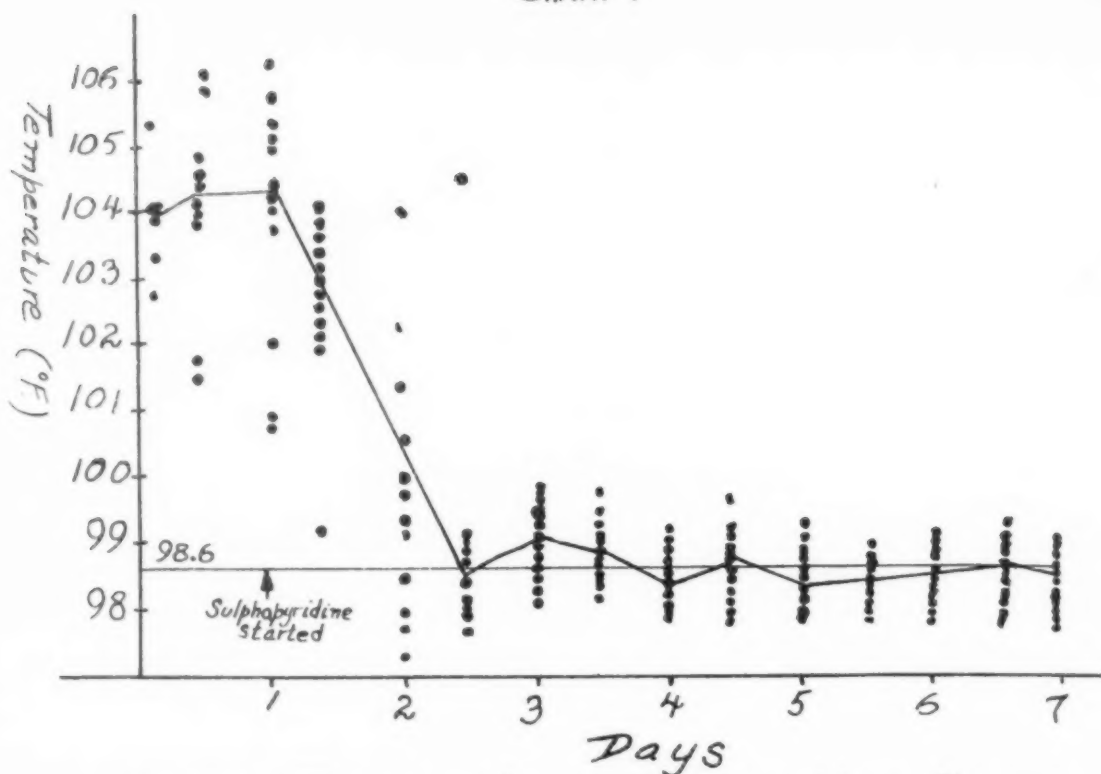
Finally, we believe that any infant or child in whom a diagnosis of pneumonia is made, regardless of etiology, type specificity, or type of pulmonary involvement, should receive the benefit of sulfapyridine therapy.

Summary

1. Twelve children with proved lobar pneumonia and eleven children with bronchopneumonia were treated with sulfapyridine.
2. The patients with lobar consolidations gave an immediate response to the exhibition of the drug.
3. The course of the disease in the patients with bronchopneumonia was not affected by sulfapyridine therapy.
4. Cyanosis, nausea, and vomiting were the only toxic manifestations encountered.

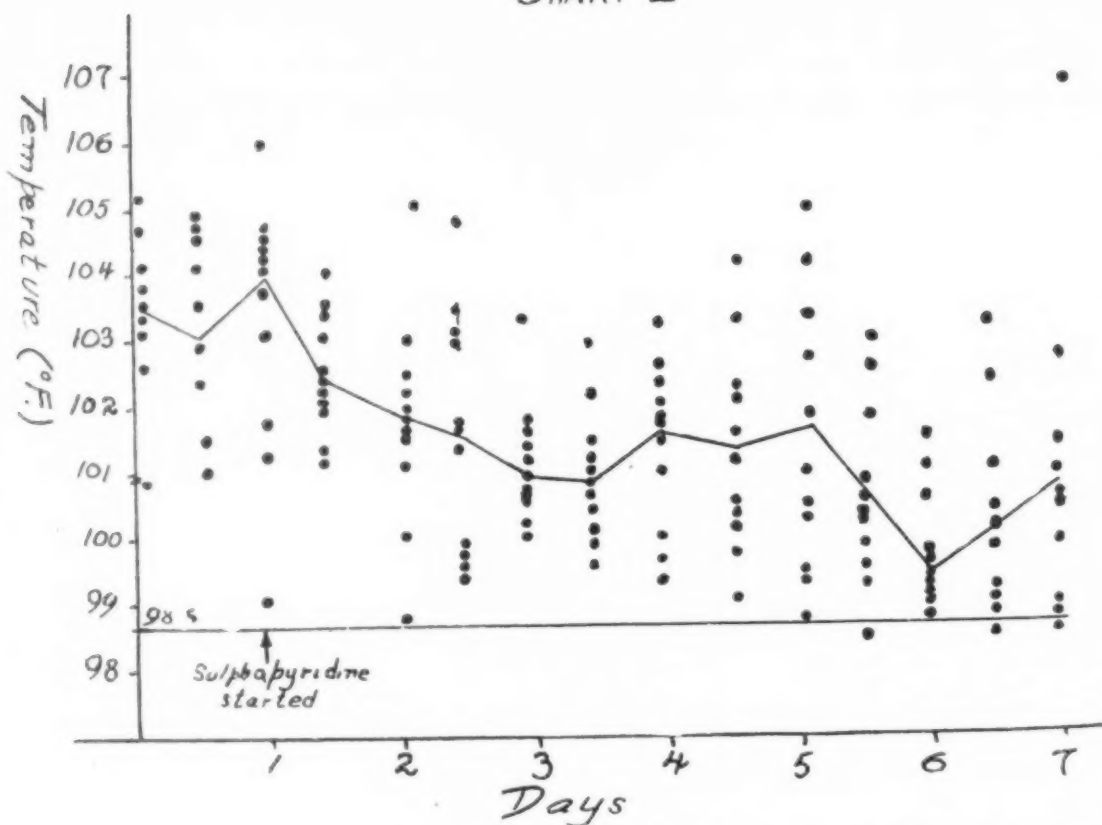
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CHART 1



Composite Temperature Curve of Twelve Cases of Lobar Pneumonia

CHART 2



Composite Temperature Curve of Eleven Cases of Bronchopneumonia

DISEASES OF THE CHEST

TABLE I

INTERVAL BETWEEN BEGINNING OF SULFAPYRIDINE *
AND

A PROBABLE ONSET OF PATHOLOGY	B RETURN OF TEMP. TO NORMAL	C DISAPPEARANCE OF PATHOLOGY
24 Hours	18 Hours	5 Days
24 "	24 "	8 "
24 "	42 "	10 "
36 "	24 "	5 "
30 "	30 "	8 "
24 "	30 "	4 "
48 "	24 "	14 "
36 "	12 "	10 "
48 "	28 "	6 "
36 "	24 "	6 "
18 "	18 "	5 "
12 "	20 "	7 "

* In Cases of Proved Lobar Pneumonia

TABLE II

INTERVAL BETWEEN BEGINNING OF
SULFAPYRIDINE * AND

A PROBABLE ONSET OF PATHOLOGY	B RETURN OF TEMP. TO NORMAL	C DISAPPEARANCE OF PATHOLOGY
72 Hours	8 Days	9 Days
36 "	13 "	15 "
24 "	9 "	12 "
21 "	Exp. 9 " Later	---
48 "	4 "	4 "
24 "	3 "	7 "
7 Days	Exp. 7 " "	---
36 Hours	6 "	9 "
5 Days	4 "	14 "
24 Hours	4 "	8 "
24 "	9 "	18 "

* In cases of Bronchopneumonia

TABLE III

VARIATIONS OF BLOOD FINDINGS IN TWENTY-THREE PATIENTS WITH PNEUMONIA RECEIVING SULFAPYRIDINE

HEMOGLOBIN GMS./100cc.	R.B.C. MILLION/mm. ³	W.B.C.	POLYS. %	CULTURE
11.7-11.4	4.15-4.21	16,600-11,000	89-70	Sterile
7.2-10.1*	2.75-3.55	24,400-10,000	89-69	"
11.7-10.6	3.75-3.82	32,000-16,200	88-74	"
12.1-11.8	4.21-4.15	13,000- 9,550	79-62	"
12.7-11.2	5.00-3.80	29,100- 8,000	92-41	"
10.5-10.0	4.88-4.41	25,100- 8,000	95-59	"
13.5-13.1	4.40-4.74	16,100- 8,600	86-65	"
10.6- 9.7	4.22-4.25	13,600-10,200	86-94	"
11.5-11.6	3.28-3.48	20,200- 5,000	89-59	"
10.6- 9.7	3.80-4.05	5,700- 8,000	80-63	"
10.5-10.7	4.05-3.76	5,100-14,000	61-84	"
11.2-10.6	4.64-4.12	16,100- 7,400	92-61	"
13.0-12.4	3.35-4.28	11,400- 9,500	80-41	None
11.7- 9.2	5.50-5.12	21,200-14,700	40-77	"
15.1-14.6**	4.35-4.28	20,700-24,600	45-40	Sterile
11.9-11.9	3.51-3.15	10,600-10,500	56-54	"
7.5- 8.7	4.03-3.21	30,300-14,800	69-51	"
12.0-10.8	4.70	9,600-17,600	60-52	"
13.0	4.47-4.30	13,000	90	"
11.6-11.6	4.22-4.53	18,900-18,000	90-84	"
10.3-11.8	4.30-3.71	32,400- 7,400	45-50	"
11.3-10.4	4.10-3.86	14,000- 7,400	62-54	"
10.1-10.1	4.23-4.51	16,500- 8,000	80-52	"

*Transfusion

**Transfused Before Sulfapyridine was started

References

- 1 Whitby, L. E. H.: *Lancet* 1, 1210, May 22, 1938.
- 2 Whitby, L. E. H.: *Lancet* 2, 1095, Nov. 12, 1938.
- 3 Long, P. H.: *J. A. M. A.*, 112:538, Feb. 11, 1939.
- 4 Long, P. H.: *Penn. Med. Journal*, 42:483, Feb., 1939.
- 5 Marshall, E. K., Jr., Bratton, A. C., and Litchfield, J. T.: *Science*, 88:597, Dec. 23, 1938.
- 6 Barnett, H. L., Hartman, A. F., Perley, A. M., and Ruhoff, M. B.: *J. A. M. A.*, 112:518, Feb. 11, 1939.
- 7 Flippin, H. F., Lockwood, J. S., Pepper, D. S., and Schwartz, L.: *J. A. M. A.*, 112:529, Feb. 11, 1939.
- 8 Telling, M., and Oliver, W. A.: *Lancet* 1, 1391, June 18, 1938.
- 9 Evans, G. M., and Gaiford, W. F.: *Lancet* 2, 14, July 2, 1938.

ELECTROCARDIOGRAPHY INSTRUCTION

FROM August 21st to September 2nd, the cardiovascular department of the Michael Reese Hospital in Chicago will conduct a course in electrocardiography. Dr. Louis N. Katz will direct the course and reservations may be made on receipt of \$10.00, which will be applied to the tuition. Additional information may be obtained from the hospital, at 29th Street and Ellis Avenue.

A Plea for Early Use of Collapse Therapy in Pulmonary Tuberculosis

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THE fight against tuberculosis reads like a chapter torn from an absorbing chronicle of the greatest war in history. As a matter of fact, war it is—for its toll in human lives, according to reliable estimates, exceeds the sum total of all those who have fallen victims to shot and shell in all the wars of history. Was it not John Bunyan who called tuberculosis the "Captain of the Men of Death?" And did not Oliver Wendell Holmes in 1861 refer to it for the first time as the "White Plague?"

It was Moorman who quoted Hippocrates, the Father of Medicine, as having said some twenty-five hundred years ago: "The spitting of pus follows the spitting of blood, consumption follows the spitting of this, and death follows consumption." In the light of present advances in science, some of us may disagree with this gloomy, pathetic picture of the consumptive drawn by a man whose knowledge of medicine was born of years of keen observation. Hippocrates had no real scientific background, yet his writings prove him a man endowed with some astuteness, for instance, when he stressed the importance of cleanliness, while he knew naught of bacteriology.

Epochal researches and discoveries through the centuries have since revolutionized the original concept of tuberculosis. Yet in 1902, Peter Dettweiler, the man who popularized the rest cure in Germany for tuberculosis, could still record that only a few years back the diagnosis of pulmonary tuberculosis was regarded as "a death warrant whose execution could merely be delayed."

Four events in the fight against tuberculosis stand out, to my mind, head and shoulders above the others. The first is Laennec's immortal treatise in 1819, *De l'Auscultation Médiate*, which laid the cornerstone of modern physical diagnosis and brought "order out of chaos" in clinical medicine. The second came three years later when James Carson

of Liverpool recommended therapeutic artificial pneumothorax in pulmonary tuberculosis. Third is Robert Koch's discovery of the tubercle bacillus as the etiology of tuberculosis in 1882 and fourth is Wilhelm Konrad Roentgen's discovery of the x-ray in 1895, making possible early and accurate diagnosis of tuberculosis.

These four events have contributed most to the successful management of the consumptive and to hastening his cure, throwing overboard the popular belief at the turn of the last century that a diagnosis of pulmonary tuberculosis was a "death warrant whose execution could merely be delayed."

While barely a score of years ago, the treatment of consumption was restricted purely to a regimen of bed rest, nourishing food, abundant fresh air and sunshine, tonics and plenty of prayer, the great strides in phthisiotherapeutics have afforded the competent phthisiologist with facilities which now enable him to tackle the case with success if seen *early enough*. The italicized words in the preceding statement comprise the keynote in the successful management of a tuberculous patient.

What good is the competency and experience of a tuberculosis expert, when a far advanced case of pulmonary tuberculosis comes to him emaciated by tuberculotoxemia; both lungs bound down by pleuritic adhesions and eaten up by thick-walled cavitations; and with manifest extra-pulmonary complications? In much the same manner, what could a surgeon accomplish with a case of carcinoma of the breast so advanced that metastatic growths have entrenched themselves in other organs?

On the other hand, a minimal case of pulmonary tuberculosis, subjected by a well-meaning family physician to months of symptomatic rest treatment, may by disease progression, continuous endogenous re-infection and repeated hemoptysis so spread, as to rob the patient of a chance for early recovery. I have seen hundreds of such cases who have

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applied at the Quezon Institute too late for any form of collapse therapy and giving a history of active disease, or repeated pulmonary oozings or both during the years previous. In these cases unwarranted delay and costly indecision are to blame.

Out of an average of 162 out-patients who seek consultation at the Quezon Institute every day, a study of a group of fluoroscopically positive cases reveals that only about thirty per cent belong to the minimal stage, while the moderately advanced and the far advanced group comprise seventy per cent of cases. While the percentage rate of minimal cases in this survey is relatively high, it can be increased further by a *more extensive* examination of *contacts* of open cases. It must be stressed most profoundly, therefore, that intensive case finding by examination of *all contacts*, is of prime necessity if *early cases* of pulmonary tuberculosis are *to be diagnosed* before they become *too advanced* for treatment.

It cannot be denied that even now there are those in the medical profession who scoff at the aptness of collapse therapy in pulmonary tuberculosis through fear of attendant complications, such as pleural effusion, empyema or spontaneous pneumothorax. This fraction of the medical world, I regret to state, is unaware of the fact that, irrespective of collapse therapy, these complications they are in mortal fear of oftentimes do come in the wake of progression of the tuberculous process.

At the hands of the trained phthisiologist or thoracic surgeon, collapse therapy has proven itself the most powerful weapon

against pulmonary tuberculosis as well as the short-cut to the incapacitated patient's rehabilitation.

Judicious use of this treatment at an *early stage* of the disease: (a) prevents the dangers of pulmonary hemorrhage; (b) checks bronchogenic spread of bacilli-laden sputa; (c) prevents lymphogenic seeding of the disease, not only to the lungs, but to the intestines, the kidneys, the larynx, the peritoneum and the meninges as well; (d) closes pulmonary cavities; (e) excites fibrosis by production of local anoxoemia; and (f) provides for effective pulmonary compression by avoidance of pleural changes.

Thanks to the advent of the x-ray and the tuberculin test, the early detection of tuberculosis of the lungs has been made relatively easy. Such a case once detected should be placed under the closest observation so that artificial pneumothorax or some other form of collapse therapy, aided by rest and proper regimen, can be instituted at the very first sign of disease activation. In this manner, the conversion of sputum and subsequent arrest of the tuberculous process is hastened; the tuberculous breadwinner is returned to his earning capacity within the shortest period; and he ceases to be a *source of infection* and a liability to his family as well as a social and epidemiological problem to the state.

The thing of moment, therefore, is the *early use* of collapse therapy so as to attain the best results with the least danger and with a minimum of delay. The adage "Early Discovery Means Early Recovery" applies most aptly, indeed, to pulmonary tuberculosis.

ILLINOIS CONDUCTS TUBERCULOSIS SURVEY OF TEACHERS

ABOUT one out of every 100 school teachers in down-state Illinois is believed to have active tuberculosis, the state department of health announced after studying the results of an examination of 2,818 persons at three state normal schools. A tuberculin skin test, followed by x-ray pictures of all positive reactors, was employed in the examination. The study disclosed twenty-six cases of active pulmonary tuberculosis, giving a rate of about 9 per thousand among the groups examined. J. A. M. A.

Some Unusual Tumors of the Chest

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TUMORS of the chest always manage to create considerable interest despite the many articles that concern them. In the average lung clinic, the diagnostician will see from time to time interesting varieties and pathological types of neoplasm, many of which are characteristic from their Roentgen studies alone, others which demand all the armamentarium of the bronchoscopist, clinical pathologist, radiologist, and thoracic surgeon. We should like to present herewith a few cases which have aroused our interest in the past few years, more from a diagnostic and therapeutic point of view.

Case 1: This patient, a white female, aged 57, was first seen by a physician in November, 1937 for pain in the right costal margin radiating to the back. The history dated two months previously and she was treated for cholecystitis. Pain became so unrelenting that Roentgenograms of the lung were taken as a routine measure and were diagnosed as pulmonary tuberculosis (Fig. 1, p. 18). One of us was called as consultant February 2, 1938, when the diagnosis of malignancy seemed apparent. By this time the pain was mostly in the back in the interscapular region and there was a considerable area of anesthesia under the right costal margin. A mass about the size of a halved grapefruit protruded from the right posterior thoracic cage. Roentgenograms were repeated and, by this time, there was erosion of the 7th, 8th and 9th ribs posteriorly and portions of the corresponding vertebral bodies, a literal saucerization of the spine. The biopsy taken at this time showed a histopathological diagnosis of malignant mesothelioma of the pleura. Needless to say, her case was too far advanced for any form of therapy and she expired April 4, 1938.

Case 2: An Assyrian male, aged 52, was first seen by a physician for pain in the right upper chest in October, 1934. Roentgenograms made at that time showed a large mass in the upper right chest, but, unfortunately, no therapy was advised. He first consulted one of us seven months later with a loss of 10

pounds of weight and with more constant and excruciating right shoulder pain. Another Roentgenogram (Fig. 2, p. 18) showed enlargement of the mass to three times its previous size with erosion of the 2nd, 3rd and 4th ribs posteriorly on the right. Physically one could see a large mass protruding posteriorly from the thoracic cage. There was no external evidence of adenopathy. After preliminary pneumothorax to determine the attachments of the tumor, he was explored under ethylene-oxygen anesthesia June 25, 1935. Complete excision of the posterior thoracic cage with pneumonectomy was performed within forty minutes. Two mediastinal glands were excised, which were positive for malignancy. The pulmonary hilum was uniformly necrotic but there was very little blood loss. He was transfused at once with 500 cc. whole blood. His immediate convalescence was exceedingly good, but after 30 hours he suddenly expired. A post-mortem examination through the thoracic incision revealed erosion of one of the pulmonary veins and tumor embolism to the left auricle. The pathological diagnosis was adenocarcinoma of the lung, grade III.

Considerable debate has been aroused in the past concerning the true nature of the so-called "endotheliomas" or "mesotheliomas" of the pleura. Wagner, Bostroem, Neelsen, Volkmann, and Adler have traced the tumor origin to the subpleural lymph spaces, while Benda and Gurrmann have proposed its origin from the pleura itself. Robertson, in 1924, showed that such tumors with epithelial characteristics could not arise from pleura, but that these growths probably reached the pleura from metastatic invasion or by direct extension from primary tumors of the lung. Similar types of tumor have been found by Scagliosi in the costal pleura and by Rossier and Pollmann in the dura, peritoneum, and pericardium. No form of therapy seems to be available which will control their rapid growth.

Case 3: This patient, a white male, aged 25, had first symptoms of a non-productive cough, hemoptysis, and pleural pain in the

right chest for 6 months previous to diagnosis. Physical examination showed no abnormality of the glandular system. Roentgenograms of the chest (Fig. 3, p. 18) showed three discreet masses in the right chest, all about 4 to 5 cm. in size. One was at the hilum, one at the cardiohepatic angle and the other at the costophrenic angle. He refused either bronchoscopy or biopsy so deep radiation therapy was advised with the belief that this was a lymphoblastoma. The blood studies are interesting: total white count 7000 including 26 per cent lymphocytes, 65 per cent neutrophils, 2 per cent monocytes, and 7 per cent eosinophiles. After Roentgen therapy (Fig. 4, p. 18) there was complete disappearance of the tumors within 16 weeks, with the following change in the blood smear: 8 per cent lymphocytes, 70 per cent neutrophils, 12 per cent monocytes and no eosinophiles. He had gained 10 pounds of weight and was asymptomatic. Our presumptive diagnosis was apparently correct. It was interesting to note that two years before, he had had a six months history of diarrhea, which may have been due to abdominal lymph gland involvement.

A rapid response to irradiation in these tumors is not a good omen. They usually recur much faster when exhibiting such radio-sensitivity. Chronic forms of the disease may live as long as from 5 to 25 years, but one may safely say that these patients nearly always die of recurrence. Experimental work from some workers in the past few years might seem to indicate that Hodgkin's Disease is related to Brucellosis. There are features of this case which would support this.

Case 4: This patient, a white male, aged 47, was admitted to a tuberculosis ward with a diagnosis of pulmonary tuberculosis of the left apex from a Roentgenographic opinion (Fig. 5, p. 18). One of us was called as consultant due to the fact that no tubercle bacilli could be recovered in three examinations of the sputum. To us the Roentgenogram showed definite evidence of tumefaction of the type frequently ascribed as "sulcus" tumor. This man had erosion of one rib and marked pain in the left shoulder and arm to the extent that he had quit work five months previously. Within one month he de-

veloped a massive bloody pleural effusion, the centrifuged specimen of which revealed tumor cells, and within another month, he was dead. The pathological diagnosis from necropsy was: primary mesothelioma of the pleura, with extension into lung and mediastinal structures.

This case shows with what rapidity these tumors may invade adjacent structures. Pancoast, in 1924, described a series of similar cases which he called "superior pulmonary sulcus tumors" all of which showed erosion of the ribs, Horner's syndrome on the same side, and a classical history of pain in the shoulder with radiation down the arm. Most pathologists are of the opinion that this tumor is really another form of bronchiogenic carcinoma, but Pancoast thought its origin was from an embryonal epithelium rest. Similar cases have been reported by Evans, Steiner and Francis, Fried, Jacox, Marciel and Crawford, Davidsohn, Feldman and Danielius, and Stein. Frost and Wolpaw reported a case which resembled these in 1936, which had its origin in the inferior cervical ganglion, a true sympathoblastoma. Regardless of the nature of the histopathology, these tumors resist most forms of therapy. Early surgical removal seems to offer the only hope for cure.

Case 5: This patient, a white male, aged 47, had a five months history of pain in the left chest with cough and hemoptysis. Sputum examination had been negative for tubercle bacilli. On examination the whole left chest was dull to percussion and Roentgenograms (Fig. 6, p. 18) showed "a sharply defined orange-sized shadow, continuous with the mediastinum and lying inseparably from the posterior pleura, pushing the left lung away with the parietal pleura intact." "There was no atelectasis. The kymograph showed no pulsation. There was erosion of the 4th, 5th, and 6th ribs near their costovertebral articulation." The Kahn and Wasserman tests were negative. A biopsy was taken which showed: primary tumor of the pleura, upper posterior left chest.

The presumptive diagnosis in the previous case was bronchiogenic carcinoma of the lung, but by the time a complete diagnosis was made, the case was evidently inoperable.

In viewing any case for suspected tumor, one should ascertain with certainty whether the growth is primary or metastatic. Roentgenograms in different planes are invaluable as they may reveal the origin of the tumor as from lung or mediastinum. Any discreet or sharply defined density in the pulmonary field should make one suspicious of new growth. Other evidences of bronchial obstruction may be present without any noticeable tumor, as atelectasis or emphysema of a portion of a lung, hilar enlargement, or an area of pneumonitis. Frequently, accompanying pathology may be manifest as bronchiectasis, tuberculosis, or lung abscess. One should always determine the causative agent in any of these conditions as they may be secondary to bronchial obstruction from neoplasia. It may remain for introduction of iodized oil into the bronchial tree to actually portray the pathological agent; in any event, this should be done as a subsidiary method of diagnosis in these obscure cases.

Benign tumors of the lung, per se, are just as important clinically as malignant tumors. By the time their presence is diagnosed, the patient is having symptoms due to enlargement, as pressure symptoms with obstruction to circulation, or dyspnea from pressure on the mediastinum or large main bronchi. Moreover, their extirpation is justifiable on the score that a relatively large percentage of the so-called benign growths develop malignant change sooner or later.

As adjuncts in the diagnosis of tumors of the lung, we utilize bronchoscopy, pneumothorax, biopsy, thoracoscopy, and thoracotomy in the order named. Not only can the bronchoscopist actually visualize the tumor in many cases, but this is often an expedient method of obtaining a biopsy. Pneumothorax should be performed in order to outline the tumor from its chest wall attachments, and to determine its actual extent in the lung parenchyma. It is a simple maneuver to introduce a thoracoscope at this time to visualize the mediastinal glands and pleural surfaces. Frequently, the operability of a growth can be thus determined. In any case of doubt, the patient should have the benefit of thoracotomy, as many times one will find that the mass is entirely resectable. In this

regard, nothing short of pneumonectomy offers any hope for cure. This type of surgery is best relegated to the experienced thoracic surgeon since the mortality in untrained hands without suitable armamentarium is apt to be prohibitive.

Emphasis must be placed on the early signs of carcinoma of the lung. As mentioned before, other pathology frequent heralds its appearance in disguise. In addition, any undiagnosed cough, hemoptysis, thoracic pain or shoulder pain, or unilateral "wheezing" should arouse suspicion until carcinoma is ruled out. Many so-called asthmatics are early cases of bronchial obstruction. In most of the diagnosed tumor cases, the history unfortunately is short lived. About 25 per cent have symptoms less than three months and another 25 per cent have a history of less than six months. Contrary to many beliefs, carcinoma of the lung is not necessarily a disease of middle age; over 40 per cent are diagnosed before the age of 45, of those seen in consultation. Pathologically, there are three main types: the squamous cell variety, the adenocarcinoma, and the oat cell type. Although the last of these is probably the least rapid in developing, their pathological differentiation is not so important, as all must be removed early. Not until routine fluoroscopic or Roentgenographic examinations of the chest are made in the general physical examination are we hopeful of diagnosing these cases early. It is the early diagnosis which offers the most toward early extirpation of the growth and eventual cure.

Conclusions

1. Five cases of lung tumors are presented herein which show interesting problems of diagnosis and treatment.

2. Early diagnosis in bronchiogenic carcinomas is urgent, if cures are to be expected. The aid of the bronchoscopist, radiologist, and thoracic surgeon is indispensable in arriving at a final conclusion.

3. Benign tumors of the lung demand as thorough a diagnosis and treatment as do malignant ones, due to their propensity for malignant change.

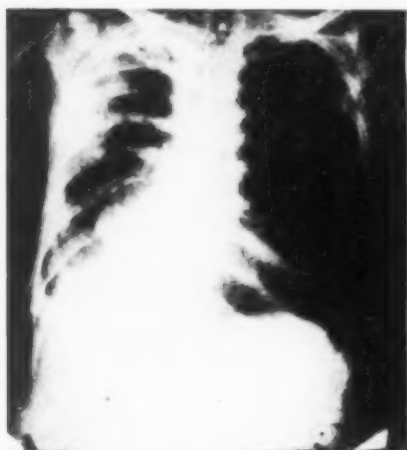


FIGURE 1

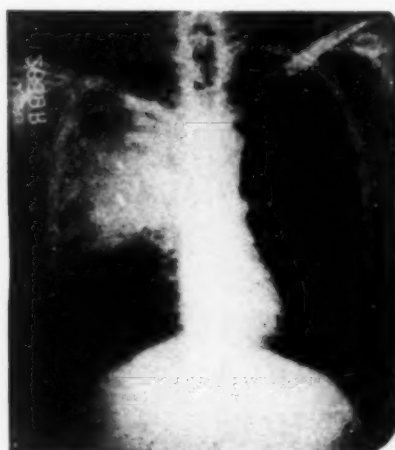


FIGURE 2

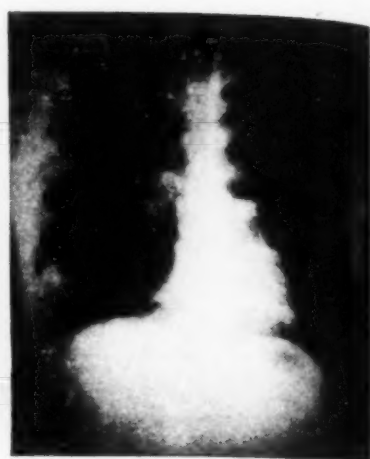


FIGURE 3

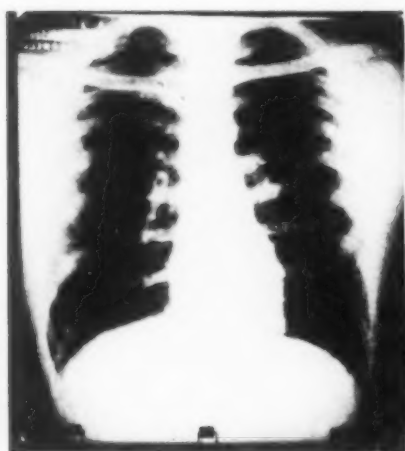


FIGURE 4

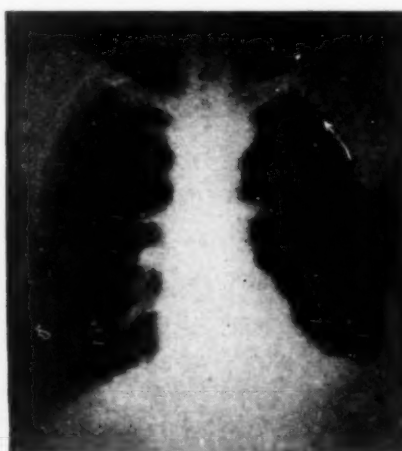


FIGURE 5

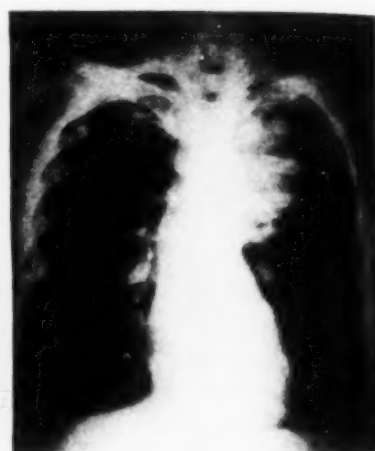


FIGURE 6

Bibliography

- Ewing, J.: *Neoplastic Diseases*, W. B. Saunders Co., Phila., Penn.
- Gutmann: *Deutsches Archiv. F. kl. Med.*, 1903, 75, 337.
- Rossier: *Z. B.*, 13, 103.
- Scagliosi: *D. W.*, 1904, 1715.
- Robertson, H. E.: "Endothelioma of the Pleura," *J. Cancer Research*, 8:317-375, October, 1934.
- Stein, J. J.: "Clinical and Pathological Features of Tumors Occurring in the Region of the Apex of the Lung," *Texas State Medical Meeting*, Fort Worth, May 12, 1937.
- Wood, E. A., and Walter, A. L.: "Primary Mesothelioma of the Pleura," *J. Missouri Med. Assoc.*, 18:277-281, 1921.

AMERICAN MUSEUM OF HEALTH LAUNCHED

PLANS for the establishment of the American Museum of Health were announced at dedication ceremonies held in the Hall of Man in the Medicine and Public Health Building at the New York World's Fair, June 17th. The Carnegie Corporation, the Rockefeller Foundation, the Oberlaender Trust and the major life insurance companies have made possible the establishment of the museum and acquisition of most of the displays at the medicine and health building. These exhibits will be maintained and expanded in a permanent health teaching center in New York at the end of the fair.

J. A. M. A.

The Treatment of Pulmonary Tuberculosis*

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THE INTRODUCTION, perfection and wide application of collapse measures constitute the chief recent advances in the treatment of pulmonary tuberculosis. Today, depending upon sectional and individual enthusiasm for collapse, from 40 to 70 per cent of all patients admitted to the more progressive sanatoria receive this form of treatment.

The superiority of collapse therapy over general medical management, particularly in cases with moderately advanced and far advanced lesions, has been amply demonstrated. Yet in spite of the deserved popularity of collapse, the time-tested principles of bed rest, fresh air, good hygiene, wholesome food and regulated exercise still play an important role in the treatment of this disease.

Pulmonary collapse, even when successful cannot, under ordinary circumstances, be considered sufficient in itself. With the exception of partial or complete removal of a lung, no form of thoracic surgery employed today in the treatment of pulmonary tuberculosis is in any sense curative. Collapse merely creates conditions that are favorable to healing and for best results should always be combined with proper medical management.

Strictly speaking, no form of treatment can be considered to be entirely successful unless it produces sputum conversion from positive to persistently negative.

General Measures

Prolonged bed rest, either alone or in combination with some form of collapse, is indicated in all active cases. The question regarding the duration of bed rest is purely individual and depends upon the extent and character of the disease and the response to treatment. Even in the most favorable cases, the minimum period should not be less than three months. After abatement of constitutional symptoms, modified bed rest should be continued for some months. This is a point that is difficult for some patients to grasp.

It should be remembered that as a rule the symptoms of pulmonary tuberculosis disappear long before adequate healing has occurred. The patient's symptomatology is not a satisfactory index by which to measure the progress of his disease. X-ray and sputum examinations and the physician's knowledge of the pathology of tuberculosis are far more accurate and reliable.

Fresh, clean air is a desirable and valuable aid in treatment. However, the patient's comfort should always be borne in mind and exposure to severe weather conditions should be avoided.

A so-called ideal climate, although beneficial, is, however, no longer considered a necessity for the successful management of the average patient. In the presence of complications such as asthma, hay-fever and chronic sinusitis, etc., a change of climate may, however, be advisable at times.

Sun-light, both natural and artificial, in the treatment of pulmonary tuberculosis is controversial. With careful supervision, certain patients may undertake ultra-violet light exposure of the chest with benefit. However, unless close supervision can be maintained it is better that generalized exposures be avoided. In the opinion of most phthisiologists, heliotherapy is definitely contra-indicated in cases manifesting toxic symptoms.

The diet of a tuberculous patient should consist of foods that are simple, wholesome and nutritious. Engorgement and the acquisition of excessive weight is no longer approved. A weight of five to ten pounds above normal should be the aim of each patient.

The matter of exercise and work after the disease has become arrested is as important as actual treatment during the stage of activity. Most relapses occur probably because of too early resumption of exercise and work. The tuberculous patient who has responded satisfactorily to treatment is usually started on walking exercise of fifteen minutes twice daily. This exercise is gradually increased until the patient is able to be up and about practically all day without tiring unduly.

* Read before the Pawtucket Medical Association, May 18, 1939.

**Rhode Island State Sanatorium.

During this period, the patient is instructed to rest in bed at least two hours each afternoon. This readjustment usually requires on an average of from six to twelve months depending upon the extent of the patient's disease. At the end of this time, the question of work may then be considered unless the patient has been so incapacitated that a return to any kind of work is out of the question. Light outdoor work is ideal for the arrested case, but indoor work is permissible providing working conditions are not unhealthy. Heavy manual labor is to be avoided, although many patients are capable of moderately heavy work. A return to the patient's usual work is very desirable unless the nature of this work is inimical to his chances of remaining well.

Collapse Measures

The indications for collapse are today much broader than formerly. There are no hard and fast rules governing its use and very often it is a matter of individual opinion. In general, we may say that collapse is indicated in any active progressive lesion, providing the disease is not too excessive. The presence of definite cavitation is practically an absolute indication for collapse. In cases with excessive disease, or when there are complications which in themselves constitute a serious threat to the patient's life, collapse therapy is generally contra-indicated. Conservative opinion holds that general medical management is the treatment of choice in minimal cases and in those with more advanced disease, but in whom the lesion is fibrotic and presents no visible x-ray evidence of cavitation. The vast majority of this group, 80 per cent or more, do well on ordinary rest measures.

Collapse therapy, unless contra-indicated, should be promptly instituted in all other cases without preliminary trial of bed rest. In some quarters, a policy of watchful waiting is still practiced with all patients. However, the late Dr. Barnes' observations in 1,454 cavity cases treated without benefit of collapse clearly revealed the folly of procrastination when dealing with this group. He found that 80 per cent died within one year after the appearance of cavitation, 85 per cent within three years, and 90 per cent

within five years.

Collapse measures may be classified as temporary and permanent.

The most widely used temporary procedures are (1) artificial pneumothorax, (2) phrenic crushing, (3) extra-pleural pneumothorax and (4) oleothorax. Less widely used are (1) apicolysis with plombage, (2) artificial pneumoperitoneum and (3) multiple intercostal neurectomy.

The important permanent measures are (1) extra-pleural thoracoplasty and (2) phrenicectomy or phrenic exeresis. Scalenotomy once popular as an adjunct to phrenicectomy is now infrequently used.

The most valuable and widely employed of all the collapse measures is artificial pneumothorax. It is the operation of choice in from 90 to 95 per cent of all patients in whom collapse is employed and, when used alone, is effective in from 50 to 70 per cent of the cases in which it is successfully induced. The chief drawback to its effectiveness is the presence of pleural adhesions, which are found in upwards of 80 per cent of the cases. By means of intra-pleural pneumonolysis or adhesion cauterization, it is possible to render the collapse effective in a small number of cases in which inhibiting adhesions are present. An additional small number can be benefitted by the use of phrenic paralysis in conjunction with the pneumothorax.

The presence of contra-lateral disease was formerly considered a contra-indication to pneumothorax, but this view is no longer held. When possible to use it, bilateral simultaneous pneumothorax is both a safe and effective procedure. Artificial pneumothorax at times can be employed with benefit in conjunction with some other form of collapse contra-laterally such as with phrenic paralysis, extra-pleural pneumothorax and thoracoplasty.

The average duration of pneumothorax treatment is from two to five years, although very occasionally it may be wise to maintain the collapse indefinitely. In instances when the collapse is unsatisfactory and prospects of improving its effectiveness with pneumonolysis or phrenic paralysis do not exist, it is advisable to discontinue the pneumothorax promptly, say in from two to three months, before complications set in and to substitute some other form of collapse.

Phrenic nerve operations have a rather limited field of usefulness. This procedure is ideally indicated where the lesion is essentially basal in location. It is also used sometimes as an aid to pneumothorax and thoracoplasty when collapse produced by the latter falls slightly short of being adequate. Occasionally, phrenic paralysis is indicated when the lung fails to re-expand completely following the termination of pneumothorax. At times in elderly patients when pneumothorax and thoracoplasty are deemed to be too dangerous, phrenicectomy is resorted to for want of something better to do.

The trend today is in favor of phrenic crushing rather than the exeresis. Phrenic crushing can really be considered a trial form of treatment. If the procedure fails to result in benefit, then the patient is none the worse off, inasmuch as function of the diaphragm has not been permanently interfered with. On the other hand, if benefit does result and it is so desired, it is a simple matter to operate again and either make the paralysis permanent, or to repeat the crushing and so extend the period of collapse for several more months.

Extra-pleural pneumothorax is a rather recent development and the final chapter on this procedure has yet to be written. In part, this operation has superceded apicolysis with plombage, which has fallen into disrepute because of the high incidence of secondary infections that have followed its use. Extra-pleural pneumothorax is being used largely in those cases in which ordinary intra-pleural pneumothorax fails and thoracoplasty is deemed to be not quite indicated. In certain instances, especially in young patients, the procedure has been used as a sort of stop-gap measure preliminary to later thoracoplasty.

In performing the operation, a sizeable section of a rib, usually the fourth, is removed and through this opening the lung is stripped away from the chest wall extra-pleurally. The air space thus created is maintained by refills as in ordinary pneumothorax.

Oleothorax has an even more limited field of usefulness than phrenic paralysis. There are four types, only two of which, strictly speaking, are collapse measures, namely maintenance and compression oleothorax.

The indications for oleothorax are clearest cut in the maintenance type. Maintenance oleothorax is used as a substitute for pneumothorax in cases where, because of adhesive pleuritis, premature loss of collapse is threatened. For this, two per cent Gomenol in cotton-seed oil is commonly used. Because the oil is absorbed less rapidly than air it is usually possible to prevent additional re-expansion through its use.

Compression oleothorax, as its name implies, is a measure designed to forcibly compress the lung when inhibiting pleural adhesions are present. However, because of the great risk of lung rupture, the rationale of this procedure is now subject to serious question.

Artificial pneumoperitoneum and multiple intercostal neurectomy are measures used in advanced, poor-risk cases in which other more strenuous collapse procedures are contraindicated. Intercostal neurectomy has fallen into almost complete disuse. Artificial pneumoperitoneum, however, still has its advocates in some quarters. The effect of artificial pneumoperitoneum is essentially the same as bilateral phrenic paralysis. In fact, the measure is occasionally used to intensify the effects of phrenicectomy.

Extra-pleural thoracoplasty is superceded in value only by pneumothorax as a collapse measure. Usually, it is employed in cases in which pneumothorax has been attempted and failed, and other lesser collapse measures would appear to be inadequate. In patients with massive unilateral cavities, there is a growing feeling that thoracoplasty is to be preferred to pneumothorax inasmuch as the results with pneumothorax in such cases are less certain than with thoracoplasty.

The present day operation is more selective and much safer than the older Sauerbruch paravertebral thoracoplasty, which it has superceded. Its operative mortality has been reduced to less than five per cent by refinements of technique and better selection of cases. Especially when combined with lung stripping procedures, the operation is now truly a selective and lung conserving measure. This has broadened its field of usefulness permitting its use in combination with collapse procedures on the opposite side.

While lobectomy and pneumonectomy have

been used in only a very few cases, they would appear to have a definite place in the treatment of pulmonary tuberculosis, particularly in cases in which complete thoracoplasty fails to lead to cavity closure or in which there is complicating bronchiectasis. With constantly

improving surgical technique, it seems probable that these measures will be employed more frequently in the future.

Reference

- 1 Barnes, H. L., and Barnes, L. R. P.: *Amer. Rev. Tuberc.*, 1928, xviii, 412.

Organization News

INDIANA COMPLETES TUBERCULOSIS COMMITTEES IN THE COUNTY MEDICAL SOCIETIES

Dr. James H. Stygall, Governor for Indiana, reports that the Tuberculosis Committees of the County Medical Societies for his state have been completed. Two hundred and twenty-nine doctors from sixty-three county societies are taking part in the program; and it is with pleasure that we report that all seven of the College's Fellows in Indiana are on the various committees. They are designated by an asterik.

Sullivan County Medical Society:

Dr. James B. Maple, Sullivan, Indiana.
Dr. W. N. Thompson, Sullivan, Indiana.
Dr. J. S. Brown, Carlisle, Indiana.

Ripley County Medical Society:

Dr. William Loehr, Moved to Tennessee.
Dr. Lloyd Hisrich, Batesville, Indiana.
Dr. Bine Whitlatch, Milan, Indiana.

Whitley County Medical Society:

Dr. Paul A. Garber, So. Whitley, Indiana.
Dr. E. A. Hershey, Churubusco, Indiana.
Dr. L. W. Tennant, Larwell, Indiana.

Boone County Medical Society:

Dr. C. G. Kern, Lebanon, Indiana.
Dr. L. S. Bailey, Lebanon, Indiana.
Dr. H. A. Beck, Lebanon, Indiana.

Lake County Medical Society:

Dr. J. W. Iddings, Crown Point, Indiana.
Dr. P. H. Becker, Crown Point, Indiana.
Dr. R. A. Elliott, Gary, Indiana.

Howard County Medical Society:

Dr. Elton R. Clarke, Kokomo, Indiana.
Dr. D. W. Paris, Kokomo, Indiana.
Dr. Will J. Martin, Kokomo, Indiana.
Dr. W. W. Gipe, Kokomo, Indiana.

Montgomery County Medical Society:

Dr. A. L. Loop, Crawfordsville, Indiana.
Dr. L. H. Davis, Crawfordsville, Indiana.
Dr. W. M. Mount, Crawfordsville, Indiana.

Allen County Medical Society:

Dr. M. R. Lohman, Fort Wayne, Indiana.
*Dr. M. H. Draper, Fort Wayne, Indiana.
Dr. E. R. Carlo, Fort Wayne, Indiana.

Parke Vermillion County Medical Society:

Dr. J. V. Pace, Rockville, Indiana.
Dr. C. Darroch, Cayuga, Indiana.
Dr. W. D. Gerrish, Clinton, Indiana.

Grant County Medical Society:

Dr. Harold E. List, Marion, Indiana.
Dr. Lester Renbarger, Marion, Indiana.
Dr. P. C. King, Swayzee, Indiana.

Lagrange County Medical Society:

Dr. Clarence Schulz, Lagrange, Indiana.
Dr. Alfred A. Wade, Howe, Indiana.
Dr. William Hildebrand, Topeka, Indiana.

Owen County Medical Society:

Dr. Claude Greene, Spencer, Indiana.
Dr. Robert H. Pierson, Spencer, Indiana.
Dr. James T. Hazel, Freedom, Indiana.

Pike County Medical Society:

Dr. T. R. Rice, Petersburg, Indiana.
Dr. George DeTar, Petersburg, Indiana.

Rush County Medical Society:

Dr. R. O. Kennedy, Rushville, Indiana.
Dr. J. E. Walther, Rushville, Indiana.
Dr. Robert Spindler, Milroy, Indiana.

Adams County Medical Society:

Dr. Myron Habegger, Berne, Indiana.
Dr. C. P. Hinchman, Geneva, Indiana.
Dr. Floyd Grandstaff, Decatur, Indiana.

Hendricks County Medical Society:

Dr. Joe Smith, Plainfield, Indiana.
Dr. L. E. Foltz, Brownsburg, Indiana.
Dr. Mount Frantz, Danville, Indiana.

Wabash County Medical Society:

Dr. A. J. Steffen, Wabash, Indiana.
Dr. Robert LaSalle, Wabash, Indiana.
Dr. J. G. Kidd, Roann, Indiana.
Dr. Jas. Walker, LaFontaine, Indiana.
Dr. C. E. Cook, North Manchester, Indiana.

DISEASES OF THE CHEST

Decatur County Medical Society:

Dr. I. M. Sanders, Greensburg, Indiana.
Dr. Chas. Overpeck, Greensburg, Indiana.
Dr. D. D. Dickson, Letts, Indiana.

Jackson Newton County Medical Society:

Dr. H. E. English, Rensselaer, Indiana.
Dr. O. E. Glick, Kentland, Indiana.
Dr. A. R. Kresler, Rensselaer, Indiana.

Greene County Medical Society:

Dr. King L. Hull, Bloomfield, Indiana.
Dr. George C. Porter, Linton, Indiana.
Dr. Sam Rotman, Jasonville, Indiana.

Gibson County Medical Society:

Dr. A. R. Scales, Oakland City, Indiana.
Dr. J. L. Morris, Princeton, Indiana.
Dr. J. R. Montgomery, Owensville, Indiana.

Steuben County Medical Society:

Dr. W. H. Lane, Angola, Indiana.
Dr. M. M. Crum, Angola, Indiana.
Dr. L. L. Eberhart, Angola, Indiana.

Pulaski County Medical Society:

Dr. C. E. Linton, Medaryville, Indiana.
Dr. T. E. Carneal, Winamac, Indiana.
Dr. Arthur Kelsey, Monterey, Indiana.

Clay County Medical Society:

Dr. John Shattuck, Brazil, Indiana.
Dr. R. K. Webster, Brazil, Indiana.
Dr. James W. Vansandt, Carbon, Indiana.

Jennings County Medical Society:

Dr. W. H. Stemm, North Vernon, Indiana.
Dr. W. L. Grossman, North Vernon, Indiana.
Dr. D. W. Matthews, North Vernon, Indiana.

Posey County Medical Society:

Dr. S. T. Ransom, Mt. Vernon, Indiana.
Dr. Paul Boren, Poseyville, Indiana.
Dr. S. B. Montgomery, Cynthiana, Indiana.

Delaware-Blackford County Medical Society:

Dr. T. R. Owens, Muncie, Indiana.
Dr. Robert Butterfield, Muncie, Indiana.

Madison County Medical Society:

Dr. O. A. Kopp, Anderson, Indiana.
Dr. Geo. Metcalf, Anderson, Indiana.
Dr. Weir Miley, Anderson, Indiana.
Dr. Ruben Zierer, Anderson, Indiana.
Dr. Charles Armington, Anderson, Indiana.

Wayne and Union County Medical Society:

Dr. Horace Wanninger, Richmond, Indiana.
Dr. Robert A. Staff, Richmond, Indiana.
Dr. W. R. Taylor, Richmond, Indiana.

Henry County Medical Society:

Dr. W. M. Stout, Newcastle, Indiana.
Dr. L. C. Marshall, Mt. Summit, Indiana.
Dr. William Robertson, Spiceland, Indiana.

Vanderburgh County Medical Society:

Dr. Paul D. Crimm, Evansville, Indiana.
*Dr. Gardner C. Johnson, Evansville, Indiana.
Dr. I. C. Barclay, Evansville, Indiana.

Dr. Henry Faul, Evansville, Indiana.
Dr. H. M. Kauffman, Evansville, Indiana.

Daviess County Medical Society:

Dr. A. G. Blazly, Washington, Indiana.
Dr. S. L. McPherson, Washington, Indiana.

Bartholomew County Medical Society:

Dr. Gordon Haggard, Hope, Indiana.
Dr. R. K. Schmitt, Columbus, Indiana.
Dr. R. P. Reynolds, Elizabethtown, Indiana.

Cass County Medical Society:

Dr. Paul Wilson, Logansport, Indiana.
Dr. William Barnett, Logansport, Indiana.
Dr. Earl Palmer, Logansport, Indiana.

Porter County Medical Society:

Dr. G. R. Douglas, Valparaiso, Indiana.
Dr. J. C. Brown, Valparaiso, Indiana.
Dr. Jack E. Dittmer, Valparaiso, Indiana.

Miami County Medical Society:

Dr. S. D. Malouf, Peru, Indiana.
Dr. R. E. Barnett, Bunker Hill, Indiana.
Dr. E. E. Shrock, Ambay, Indiana.

Putnam County Medical Society:

Dr. Dick Steele, Roachdale, Indiana.
Dr. George McCoy, Greencastle, Indiana.
Dr. Frederick Detloff, Cloverdale, Indiana.

Dubois County Medical Society:

Dr. Leo Salb, Jasper, Indiana.
Dr. G. A. Held, Holland, Indiana.
Dr. H. K. Stork, Huntingburg, Indiana.
Dr. St. Johns Lukemeyer, Jasper, Indiana.
Dr. H. G. Backer, Ferdinand, Indiana.

Perry County Medical Society:

Dr. David Dukes, Tell City, Indiana.
Dr. L. A. Lashley, Tell City, Indiana.
Dr. Logan Epple, Bristow, Indiana.

Marshall County Medical Society:

Dr. Harry Knott, Plymouth, Indiana.
Dr. P. R. Ireby, Plymouth, Indiana.
Dr. F. E. Radcliffe, Bourbon, Indiana.

Hamilton County Medical Society:

Dr. C. H. Tomlinson, Cicero, Indiana.
Dr. Robert Harris, Noblesville, Indiana.
Dr. A. F. Connoy, Westfield, Indiana.

Monroe County Medical Society:

Dr. C. H. Marchant, Bloomington, Indiana.
Dr. R. C. Austin, Bloomington, Indiana.
Dr. R. E. Lyons, Jr., Bloomington, Indiana.
Dr. Hugh Ramsey, Bloomington, Indiana.
Dr. Edith B. Schuman, Bloomington, Indiana.

LaPorte County Medical Society:

Dr. John T. Kemp, Michigan City, Indiana.
Dr. Robert Kelsey, LaPorte, Indiana.
Dr. D. J. Kennington, Michigan City, Indiana.
Dr. G. G. Krieger, Michigan City, Indiana.

Switzerland County Medical Society:

Dr. George Ellerbrook, Vevay, Indiana.
Dr. L. H. Bear, Vevay, Indiana.
Dr. Fred Bakes, Vevay, Indiana.

Johnson County Medical Society:

Dr. Florence Blackford, Franklin, Indiana.
 Dr. Kenneth Sheek, Greenwood, Indiana.
 Dr. Porter Myers, Edinburg, Indiana.

Shelby County Medical Society:

Dr. W. C. McFadden, Shelbyville, Indiana.
 Dr. B. G. Keeney, Shelbyville, Indiana.
 Dr. J. A. Davis, Flatrock, Indiana.

Clinton County Medical Society:

Dr. R. A. Hedgecock, Frankfort, Indiana.
 Dr. H. Royster, Frankfort, Indiana.
 Dr. R. A. Burroughs, Frankfort, Indiana.

Floyd County Medical Society:

Dr. John P. Gentile, New Albany, Indiana.
 Dr. Kenneth Brown, New Albany, Indiana.
 Dr. A. N. Robertson, New Albany, Indiana.

Spencer County Medical Society:

Dr. V. V. Schriefer, St. Meinrad, Indiana.
 Dr. Eva Buxton, Rockport, Indiana.
 Dr. C. L. Springstun, Chrisney, Indiana.
 Dr. W. P. Jolly, Richland, Indiana.

Fulton County Medical Society:

Dr. Virgil Miller, Akron, Indiana.
 Dr. M. O. King, Rochester, Indiana.
 Dr. H. W. Markley, Rochester, Indiana.

Morgan County Medical Society:

Dr. Harvey White, Martinsville, Indiana.
 Dr. Austin Sweet, Martinsville, Indiana.
 Dr. Leon Gray, Martinsville, Indiana.
 Dr. W. J. Stangle, Mooresville, Indiana.
 Dr. M. G. Murphy, Morgantown, Indiana.

Noble County Medical Society:

Dr. K. D. Sneary, Avilla, Indiana.
 Dr. Gerald Shortz, Kendallville, Indiana.
 Dr. J. R. Nash, Albion, Indiana.
 Dr. B. H. Pulkamp, Wolcottville, Indiana.
 Dr. J. B. Schutt, Ligonier, Indiana.

Vigo County Medical Society:

Dr. Jas. F. Spigler, Terre Haute, Indiana.
 Dr. W. G. Crawford, Terre Haute, Indiana.
 Dr. Jas. V. Richart, Terre Haute, Indiana.

Carroll County Medical Society:

Dr. Charles Wise, Camden, Indiana.
 Dr. Robert Wagoner, Burrows, Indiana.
 Dr. Hubert Gros, Delphi, Indiana.

Kosciusko County Medical Society:

Dr. Max D. Garber, Warsaw, Indiana.
 Dr. George L. Kress, Warsaw, Indiana.
 Dr. George H. Schlemmer, Warsaw, Indiana.

Tipton County Medical Society:

Dr. Boyd Burkhardt, Tipton, Indiana.
 Dr. S. M. Cotton, Goldsmith, Indiana.
 Dr. J. V. Carter, Tipton, Indiana.

St. Joseph County Medical Society:

*Dr. R. B. Sanderson, South Bend, Indiana.
 Dr. Isadore Sandock, South Bend, Indiana.
 Dr. Richard Holdeman, South Bend, Indiana.

Scott County Medical Society:

Dr. J. V. Wilson, Scottsburg, Indiana.
 Dr. T. N. Hill, Scottsburg, Indiana.

Jefferson County Medical Society:

Dr. S. A. Whitsitt, Madison, Indiana.
 Dr. Anna Goss, Madison, Indiana.
 Dr. Carl Henning, Hanover, Indiana.

Harrison County Medical Society:

Dr. Frederick Byerley, Elizabeth, Indiana.
 Dr. Frederick Applegate, Corydon, Indiana.
 Dr. E. H. Baker, Crandall, Indiana.

Jackson County Medical Society:

Dr. L. H. Osterman, Seymour, Indiana.
 Dr. H. P. Graessle, Seymour, Indiana.
 Dr. W. Durbin Day, Seymour, Indiana.

Elkhart County Medical Society:

Dr. Robert Bender, Elkhart, Indiana.
 Dr. Douglas Price, Nappanee, Indiana.
 Dr. Floyd Martin, Goshen, Indiana.

Marion County Medical Society:

*Dr. Russell Henry, Indianapolis, Indiana.
 *Dr. James S. McBride, Indianapolis, Indiana.
 Dr. S. J. Jennings, Indianapolis, Indiana.
 *Dr. Charles McIntyre, Indianapolis, Indiana.
 Dr. T. J. Beasley, Indianapolis, Indiana.
 *Dr. James H. Stygall, Indianapolis, Indiana.
 Dr. E. M. Amos, Indianapolis, Indiana.
 Dr. William E. Wise, Indianapolis, Indiana.
 Dr. William A. McBride, Indianapolis, Indiana.
 Dr. R. A. Soloman, Indianapolis, Indiana.

ADDRESSES BY FELLOWS OF THE COLLEGE

Among the papers presented by Fellows of the College in May, was one by Dr. Merle D. Bonner of Jamestown, North Carolina on May fourth. The address was made to the Guilford County Medical Society, meeting in Greensboro, North Carolina and the subject was *The Use of the Bronchoscope in Conditions Other Than Foreign Bodies*.

Then, on June 8th at a meeting of the Dallas County Medical Society which was held in Dallas, Dr. Elliott Mendenhall, a Fellow of the College, spoke on *Bronchiectasis*.

And in Scotland at the one hundred and seventh annual meeting of the British Medical Association, which was held in Aberdeen, during the week of July 21st to July 28th, Dr. Chevalier Jackson of Philadelphia, Pennsylvania, Fellow of the College, read a paper on *The Role of the Bronchoscopist in the Diagnosis and Treatment of Bronchopulmonary Disease*.

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ADDRESS OF THE OUTGOING PRESIDENT (Continued from page 7).

now showing a sturdy growth.

Our Journal, *Diseases of the Chest*, is carrying its vital messages to the doctors in general practice over the land. Its circulation shows a sustained increase and is today over 10,000.

After some deliberation, we called ourselves a College—The American College of Chest Physicians. The term was well and wisely chosen. We are exercising and performing the activities of a College, the functions of a College, the duties of a College. We are a College!

Recently released figures by the Metropolitan Life Insurance Company show a further drop in the mortality rate of pulmonary tuberculosis for the past year. I can but feel that the American College of Chest Physicians played no little part in accomplishing this.

I am profoundly and humbly grateful to

the other officers of the College and to the chairmen of the different committees for the very fine cooperation and support accorded me. The success of this annual meeting in St. Louis is assured by the splendid and cohesive efforts of our local committees. To these colleagues, therefore, I extend my unbounded praise. I feel assured, however, that it is not praise they desire; but rather that their reward is the glowing satisfaction of seeing a job well done.

If, in closing, I may indulge a prophetic vision, it would be that the American College of Chest Physicians will become the leading and guiding force in the development and progress of chest diseases and to it will come the accolade of making the greatest contribution to mankind in its struggles to be cast free from the imprisoning shackles of tuberculosis.

NEW YORK TUBERCULOSIS NEWS

THE FIRST complete county tuberculosis sanatorium built in New York, the Oak Mount Sanatorium of Ontario County, burned on May 31st. Only three patients were confined to bed at the time of the fire and all were removed without harm.

The New York City Department of Hospitals has provided for, or has at present under construction, 1,673 of the 2,500 beds for tuberculosis, recommended in the 1934 Special Committee report, under the chairmanship of Dr. Haven Emerson.

All probationary teachers who apply for permanent teaching licenses in New York must pass a physical examination in the future, said the superintendent of schools. In part, the statement was inspired by recent x-ray examinations of new teachers, which revealed that nearly 2 per cent of the candidates had active tuberculosis. The forthcoming examinations will include x-ray studies.

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J. E. POTTENGER, M.D.	Asst. Medical Director & Chief of Laboratory
LEROY T. PETERSEN, M.D.	Asst. Physician & Roentgenologist
F. M. POTTENGER, Jr., M.D.	Assistant Physician

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SISTER MARY EDWARD, Superintendent

E. W. HAYES, M.D., Medical Director

Obituary

DR. EARNEST C. COOPER

State Park, South Carolina

1877 - 1939



EARLY on the morning of May 6, 1939, after an extended illness, Dr. Earnest C. Cooper, Superintendent of the South Carolina State Sanatorium, passed away.

Dr. Cooper was born January 29, 1877, in Mecklenburg County, North Carolina. In 1895 his family moved to Columbia, S. C., where he practiced general medicine for five years—from 1910 to 1915.

After graduating from John Hopkins Medical School, Dr. Cooper married Miss Mary Gibson of Baltimore in 1913, who, together with three children, survives him.

Many honors came Dr. Cooper's way: In 1915 he was appointed Superintendent of the South Carolina Sanatorium; in 1925 he was made First Vice-President of the State Tuberculosis Association, which office he held until 1938, when he

was made an Honorary Vice-President; in 1929 he was elected for a two year term on the Board of Directors of the National Tuberculosis Association; in 1933 the Earnest Cooper Community Building was dedicated to him; and in 1938 he was awarded the Algernon Sidney Sullivan Medallion for unselfish service by the University of South Carolina.

Dr. Cooper was a member of the A. M. A., the American College of Chest Physicians, the South Carolina Medical Association, and the Columbia Medical Society.

The death of Dr. Cooper comes as a blow. We, who have been making the fight against tuberculosis, have lost a valuable ally. We are, however, proud that it was our good fortune to associate and work with such a capable and inspiring comrade.